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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,594	07/24/2003	Masahiro Chida	1131-0486P	7938

2292 7590 11/08/2004

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EXAMINER	
ROGERS, DAVID A	

ART UNIT	PAPER NUMBER
2856	

DATE MAILED: 11/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/625,594	CHIDA ET AL.	
	Examiner	Art Unit	
	David A. Rogers	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 October 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 October 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-5 have been considered but are moot in view of the new ground(s) of rejection.

Priority

2. Acknowledgment is made of applicant's claim for priority based on applications filed in Japan on 07 February 2001 (application 2001-030923) and 29 January 2002 (PCT/JP02/00668). It is noted, however, that applicant has not filed a certified copy of the PCT/JP02/00668 application. Per MPEP 201.13(b):

> In accordance with the conditions and requirements of section 120 of this title, an international application designating the United States shall be entitled to the benefit of the filing date of a prior national application or a prior international application designating the United States, and a national application shall be entitled to the benefit of the filing date of a prior international application designating the United States. If any claim for the benefit of an earlier filing date is based on a prior international application which designated but did not originate in the United States, the Director may require the filing in the Patent and Trademark Office of a certified copy of such application together with a translation thereof into the English language, if it was filed in another language.

The applicant is requested to file a certified copy of the priority document PCT/JP02/00668, which should have designated the United States, along with a statement certifying that the current specification is translation of the priority document.

Claim Objections

3. Claims 1 and 3 are objected to. Claims 1 and 3 recite the phrase --inactivated inside and depressurized in advance--. The only time the applicant uses the term --inactivated-- in the specification was on page 6, line

10. However the applicant has amended the specification to remove the term --inactivated-- and replaced with the term --depressurized--. It is requested that the applicant delete the added phrase --inactivated inside and-- from the claims.

4. Claim 5 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 5 requires that the sample not release volatile components through thermal decomposition. However, claim 3 already requires that the sample not be thermally decomposed. If the sample is not thermally decomposed then it will inherently not release compounds due to thermal decomposition.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis f or all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 6,048,404 to White in view of United States Patent 5,437,201 to Krueger and United States Patent 5,863,789 to Komatsu *et al.*

White teaches that it is known to analyze the headspace of a container holding a solid sample such as from tobacco. In particular, White teaches that tobacco is placed in a container that is sealed. The headspace in the container is replaced with an inert gas such as nitrogen. The sealed container is maintained at a predetermined temperature (175 °C) in order to release the volatile materials contained in the tobacco into the headspace. Afterwards, the headspace is sampled, and the sample is injected into gas analyzer such as a gas chromatograph. White also teaches that this temperature does not thermally decompose the tobacco (column 3, lines 38-60).

White does not teach the use of an evacuated chamber for collecting the sample. Kreuger teaches the use of an evacuated container for use in collecting a sample. The apparatus has a container (reference item 3) connected to a valve (reference item 25) and a pump (reference item 16). The pump is used to evacuate the container. Inside the container is a sample vessel (reference item 9), such as a Tedlar bag. Tedlar bags are taught as being preferred sample vessels as they do not chemically react with the sample. In use the container is connected a sampling location via a connection (reference item 12) and a valve (reference item 11). When a sample is desired the pump evacuates the container, and the valve (reference item 11) is opened. The differential pressure between the sampling location and the sample vessel causes the sample in order to equalize the pressure. The valve (reference item 11) is closed thus trapping the sample in the sample vessel. Krueger teaches that this is a preferred device for obtaining a sample from a headspace since it

does not allow the material in the headspace to be exposed to the atmosphere (column 3, lines 50-54) or to various pieces of equipment (column 4, lines 7-12).

Headspace techniques generally require a closed system with material that contains constituents in a liquid phase. Over time the liquid phase constituents will enter the vapor phase in the headspace (and vice versa) until equilibrium is reached. Equilibrium is independent of temperature. That is, no matter what temperature is used, the number of molecules entering the vapor phase and the number of molecules reentering the liquid phase will be equal at equilibrium. At higher temperatures, however, more energy is imparted to the individual molecules and, therefore, more molecules will enter into the vapor phase. At higher temperatures the headspace concentration of individual constituent molecules is higher at equilibrium.

The release of materials is also dependent on the constituent's vapor pressure. The sudden drop in the headspace pressure, such as when using the sampling of the headspace using the device of Krueger, will increase the vapor pressure of all constituents in the sample. Thus, additional constituents not in the vapor headspace (at equilibrium) will enter the vapor phase into the headspace region and, therefore, into the sample vessel.

White also does not teach the use of a thermostatic chamber to maintain the sample at a predetermined temperature. As is known in the art and discussed above, headspace equilibrium is the state where the rate of molecules entering a vapor phase equals the rate at which molecules reenter a

liquid phase. Typically, equilibrium occurs at a set temperature. That is, if the temperature fluctuates then the closed member is never in state of equilibrium. Thermostatic chambers offer well-controlled environments making equilibrium possible. Furthermore, Komatsu *et al.* teaches that it is known in the art to use a thermostatic chamber to maintain the temperature of a sealed container with a solid sample (column 17,lines 48-62). From Komatsu *et al.* it is also known to operate the thermostatic chamber at an "ordinary" temperature such as 25 °C. The applicant's choice of a preferred temperature to operate the thermostatic chamber is a matter of design choice and is determined based on the known volatility and/or vapor pressure of the constituents, the type of sample, and the time required for reaching equilibrium in the headspace.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of White with the teachings of Krueger and Komatsu *et al.* in order to provide a thermostatic chamber for maintaining a sample chamber at a predetermined temperature and to sample the headspace of the sample chamber using an evacuated vessel.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over White in view of Krueger and Komatsu *et al.* as applied to claim 1 above, and further in view of United States Patent 5,621,180 to Simon *et al.*

White in view of Krueger and Komatsu *et al.* teaches a method and apparatus for sampling the headspace of a container using an evacuated chamber. White in view of Krueger and Komatsu *et al.* does not expressly

teach a chamber where the chamber is evacuated to about 100 Pa. However, the general conditions of using evacuated chambers is taught. Per MPEP 2144.05:

> "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) (Claimed process which was performed at a temperature between 40 °C and 80 °C and an acid concentration between 25% and 70% was held to be *prima facie* obvious over a reference process which differed from the claims only in that the reference process was performed at a temperature of 100 °C and an acid concentration of 10%.)

Furthermore, Simon *et al.* teaches that it is known to use an evacuated chamber (reference item 12) (see figure 1) for the collection of samples that will be analyzed by means such as a gas chromatograph. The chamber has an associated pressure gauge (reference item 18) capable of displaying a pressure between -30 Hg to 30 psi. This would indicate that the sample chamber has the ability to be evacuated to about 100 Pa (roughly 0.0145 psi).

It would have been obvious to one of ordinary skill in the art to modify the teachings of White, Krueger, and Komatsu *et al.* with the teachings of Simon *et al.* in order to provide an apparatus for analyzing the headspace of a container using a chamber evacuated to about 100 Pa for collecting the constituents in the headspace.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. United States Patent 3,290,889 to Nii teaches the general benefits of using thermostatic chambers.

b. United States Patent 5,433,120 to Boyd *et al.* teaches the use of an evacuated chamber (reference item 11) connected to a valving system (reference item 13). Actuation of the valving system causes a constant amount of a sample to enter into the chamber. The device has the benefit of purging the system between samples so as to avoid contamination of subsequent samples.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Rogers whose telephone number is (571) 272-2205. The examiner can normally be reached on Monday - Friday (0730 - 1600).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

dar
03 November 2004

HEZRON WILLIAMS
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